ASSAf Statement on the Implications of the Novel Coronavirus (SARS-CoV-2; COVID-19) in South Africa

In December 2019 a novel coronavirus (now known as SARS-CoV-2) was identified in a cluster of hospitalised patients with pneumonia with a possible common source of exposure in a food market in the capital city of Wuhan, in the Chinese Province of Hubei. This strain of coronavirus, although not previously identified in humans, is phylogenetically very similar to the SARS-CoV that caused an epidemic of severe acute respiratory syndrome (SARS; pneumonia) in the Chinese Province of Guandong in 2002. This is the third time in two decades that a zoonotic coronavirus has crossed species to infect human populations, the other epidemic being the MERS-CoV outbreak in 2010 in the Middle-East, with the largest number of cases in Saudi Arabia. As with other respiratory illnesses caused by common coronavirus and other viruses, infection with SARS-CoV-2 (also referred to as COVID-19 if causing disease), causes mild symptoms including a sore throat, cough and fever. In some persons, usually the elderly or people with pre-existing medical conditions (such as diabetes and heart disease), the infection can be more severe and can lead to severe pneumonia, respiratory or kidney failure, and ultimately death. Importantly, it is not known whether individuals with Human Immunodeficiency Virus (HIV) or underlying Tuberculosis (TB), both of which are highly prevalent in South Africa, are at increased risk for severe disease following infection with SARS-CoV-2. This is especially relevant based on evidence that individuals living with HIV have an eight-fold greater burden of hospitalisation for pneumonia due to influenza virus, and a three-fold higher case fatality risk.

As of 28 February 2020, there have been approximately 78,000 identified cases of COVID-19, and 2,800 deaths. This is in contrast to the approximately 8,500 and 2,500 cases reported for the previous SARS-CoV and MERS-CoV epidemics, respectively. Although the case fatality risk of SARS-CoV-2 is lower (approximately 2%) compared to SARS-CoV of 2002/3 (10%; 800 deaths) or MERS-CoV (35%; 866 deaths), transmission of SARS-CoV-2 has been more widespread. To date the majority of COVID-19 cases are in Wuhan and the greater Hubei Province in China, however, as of 28 February 2020 COVID-19 cases have been identified in more than 40 countries, including epidemics in Iran, South Korea and Northern Italy. Furthermore, isolated imported cases have been identified in at least three African (Egypt, Algeria and Nigeria) countries. This indicates that the virus is likely to spread to other African countries, including South Africa which is considered high risk due to people travelling in and out of the country to affected areas. The ability of African countries to timeously detect the virus in the absence of robust surveillance systems, as well as the ability to scale-up resources to attend to additional demands posed by an outbreak are of concern. To address this, countries in the African region are receiving international support to strengthen surveillance and access to diagnostics, infection control and clinical care. The test of the success of this important global intervention will be the ability of resource-constrained countries to respond to imported cases or wider outbreak should this occur.

In South Africa, the National Institute of Communicable Diseases (NICD) has one of the most effective surveillance programmes in the region and serves as a reference laboratory for a number of African countries. For the surveillance system to work well, it is important for health services to be alert to identification of possible cases so that appropriate diagnostic and infection control measures are taken. The South African Department of Health and the NICD have been pro-active in implementing a comprehensive multisectoral plan across all provinces, offering laboratory and healthcare worker training aimed at strengthening surveillance, infection control and clinical care. This is complemented by continuously updated guideline documents shared with the many stakeholders in the private and public health sector. However, as seen in China and South Korea, in the event of a major outbreak of SARS-CoV-2 in South Africa, the ability of our health services to adequately respond may be stretched. Consequently, a low threshold for testing of suspected cases of COVID-19, early isolation of highly suspicious cases, and possibly quarantine of their close contacts (for at least 14 days if confirmed in the index case) may need to be exercised to mitigate widespread transmission of SARS-CoV-2 in South Africa.

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Furthermore, with healthcare workers attending to COVID-19 cases being at particularly high risk of infection, it is essential that all healthcare workers be trained to be rigorous with routine infection control practices, especially hand hygiene (using soap or alcohol solutions) when attending to patients with respiratory symptoms and more generally. Such infection control practices, in addition to reducing risk of infection by SARS-CoV-2, are also critical for reducing risk of acquisition of other infections (including the influenza virus which usually circulates in South Africa from April to August). Also, proper hand hygiene practices among health workers (and others), is critical to address the current public health emergency of the high burden of multi-drug resistant bacterial invasive disease already existent in our hospitals.

At a recent meeting of researchers and experts convened by the World Health Organisation, many unanswered questions about SARS-CoV-2 and COVID-19 were identified and an urgent global research agenda developed. This includes better understanding of the natural history and epidemiology of SARS-CoV-2, immunological markers of infection, studies to identify effective therapeutics, diagnostics and vaccines. Noting the stigma and community concern that this outbreak is causing, a complementary socio-behavioural research agenda was also prioritised. A 'One Health' approach to identifying and managing the reservoir and intermediate hosts is critical to control. Such research and development are key to the response to outbreaks of emerging and re-emerging pathogens, as evidenced by the recent Ebola virus outbreaks in Africa which have been mitigated by the development and successful deployment of countermeasures such as rapid diagnostics, vaccines, therapeutics supported by intensive community engagement.

In conclusion, the Academy of Science of South Africa (ASSAf) supports the pro-active stance of the National Department of Health, the NICD and other stakeholders in the preparation for the possible importation of SARS-CoV-2 into South Africa. Nevertheless, we recommend increased investment in surveillance structures to support timeous response to suspected cases of COVID-19 (and their contacts), and increased support for the public healthcare service to facilitate effective management of cases. Also, it is essential that the significant training of healthcare workers already undertaken be expanded and reinforced on infection control practices in general. Furthermore, it is important to pro-actively counter any rumours and false-science which have the potential to cause widespread social and economic stress if not countered by evidence-led initiatives.

The current outbreak of SARS-CoV-2 has been declared a 'public health emergency of international concern' by the World Health Organisation, with strong indicators that it could soon be declared a pandemic. In addition to the health consequences of such a pandemic, the SARS-CoV-2 epidemic is already having an economic impact, with most major financial markets reporting large declines over the past week, and threats that a pandemic could affect economic growth globally. This is of particular concern to a country such as South Africa, which has been bordering on a recession and where economic growth has been stagnant over the past few years. While the world has responded rapidly, our ability to contain and stop this outbreak depends on the collective response of governments, scientists, the global community and of citizens, and we all have a role to play in this response.

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